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A fast-paced & rewarding career – Be A Chemical Engineer!

Mega growth trends like rapid urbanisation, changing demographics and the rise of the Asian middle-class are shifting the need for products and services to Asia. With greater demand for transportation fuel, as well as petrochemical and specialty chemical products, the Asia growth story creates a window of opportunity. As one of the world's leading energy and chemical industry hubs, Singapore's contribution to the industry is vast, both in terms of output and research. Singapore's position as a global chemicals hub has grown in tandem with the extensive development of Jurong Island — an integrated complex housing many of the world's leading energy and chemical companies, among them BASF, ExxonMobil, Lanxess, Mitsui Chemicals, Shell and Sumitomo Chemicals. Presently, Jurong Island has successfully attracted investments in excess of S\$35 billion. The government, supported by the Economic Development Board (EDB), wants to keep the manufacturing industry in a balanced economic environment.

With this economical focus in Research & Development (R&D), there is a demand of chemical engineers in Singapore.

What is Chemical Engineering?

Chemical engineering is all about turning raw materials into useful, everyday products. The clothes we wear, the food and drink we consume and the energy we use all

depend upon chemical engineering. Chemical engineers work out the processes to make all these products, while also helping to manage the world's resources, protect the environment and ensure health and safety standards are met.

Most jobs in the sector fall into one of two groups: the design, manufacture, and operation of plants and machinery, or the development of new or adapted substances and materials.

The number of students studying chemical engineering at university is rising.

Starting out and career progression

Opting to study chemical engineering can open up a range of employment avenues. There is no typical first job for a graduate, although careers in the energy, water, food and pharmaceutical sectors are all commonplace. The transferable skills taught at university, such as project management and understanding process flow, also make students highly sought after among employers beyond the world of engineering and it's not uncommon to find chemical engineering graduates in the finance sector.

Graduates who stay in the industry usually start their career as a junior/graduate process engineer. Day-to-day duties for graduates include product development, plant design, risk analysis, and using simulation tools. With some experience, you can progress to roles in areas such as project management, risk assessment or consultancy and many become specialists in a particular area, such as safety or environmental regulation.

A career that pays

The average pay for a Chemical Engineer is S\$45,600 per year. A skill in Chemical Process Engineering is associated with high pay for this job. With students now needing to make difficult decisions about which university courses represent the best return on investment and career prospects, a degree in chemical engineering scores highly in both areas.

With a shortage of skilled people and the potential for career growth, the sector is highly attractive for graduates.

How to get started

If you're thinking about a career in chemical engineering, you'll need to be good at Mathematics and Chemistry. The most common A-levels studied by chemical engineering students are Mathematics, Physics and Chemistry. So if you're analytical and enjoy solving problems, chemical engineering could be the career for you.

Most universities offer a choice of either a bachelor of engineering or a master of engineering degree course.

Important Qualities

Analytical skills. Chemical engineers must be able to troubleshoot designs that do not work as planned. They must be able to ask the right questions and then find answers that work.

Creativity. Chemical engineers must be able to explore new ways of applying engineering principles. They work to invent new materials, advanced manufacturing techniques, and new applications in chemical and biomedical engineering.

Ingenuity. Chemical engineers learn the broad concepts of chemical engineering, but their work requires them to apply those concepts to specific production problems.

Interpersonal skills. Because their role is to put scientific principles into practice in manufacturing industries, chemical engineers must develop good working relationships with other workers involved in production processes.

Math skills. Chemical engineers use the principles of calculus and other advanced topics in mathematics for analysis, design, and troubleshooting in their work.

Problem-solving skills. In designing equipment and processes for manufacturing, these engineers must be able to anticipate and identify problems, including such issues as workers' safety and problems related to manufacturing and environmental protection.

Are you ready for this fast-paced and rewarding career?

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